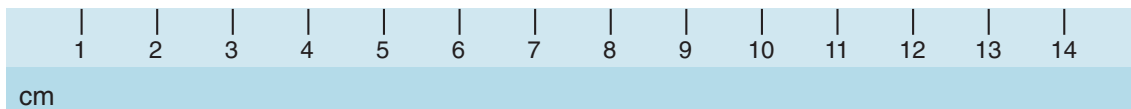


Measuring Length

1

This ruler shows centimetres.



This ruler shows centimetres and **millimetres**.

We use the symbol **mm** for millimetres.



How many millimetres are in 1 cm?

Explore



You will need a ruler and a metre stick or tape measure marked in centimetres and millimetres.

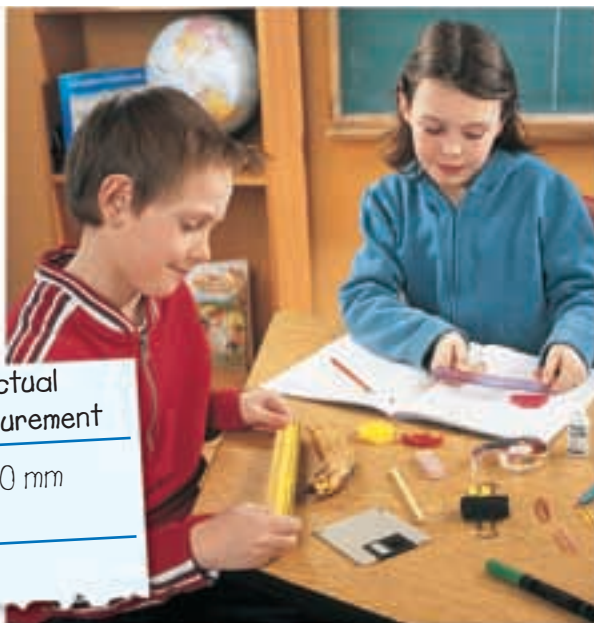
Have a scavenger hunt.

➤ Estimate to find an object whose length fits each description:

- about 25 mm
- about 80 mm
- about 250 mm
- between 500 and 1000 mm
- shorter than 10 mm

➤ Measure to check your estimate.

Record your results in a table.



Given measurement	Object	Actual measurement
about 25 mm	an eraser	30 mm

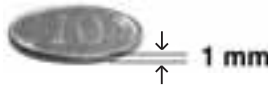
Show and Share

Share your strategies for estimating with other students.
Record your strategies in a class list.

Connect

You can use millimetres to measure the length, width, height, or thickness of small objects.

A dime is about 1 mm thick.

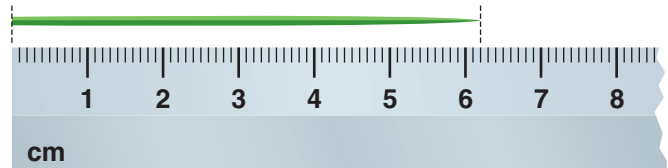


You can use the thickness of a dime as a **referent** for 1 mm. A referent is used to estimate a measure.

This pine needle is about 6 cm long.

To be more precise, you read the length in millimetres.

The pine needle is 62 mm long.



One millimetre is one-tenth of a centimetre.

So, you can also read the length of the pine needle in centimetres.

The pine needle is 6.2 cm long.

You say: 6 and 2 tenths centimetres

Centimetres and millimetres are related.



A referent for 1 cm is the width of my little finger. There are 10 mm in 1 cm.

So, that means 1 mm is $\frac{1}{10}$ of a centimetre, or 0.1 cm.



Metres and centimetres are related.



A referent for 1 m is the width of the classroom door. There are 100 cm in 1 m.

So, that means 1 cm is $\frac{1}{100}$ of a metre, or 0.01 m.

Metres and millimetres are related.



And there are 1000 mm in 1 m.



Practice

Use a ruler or metre stick when it helps.

1. Copy and complete each table.

a)	cm	1	2	3	4	5	6	7	8	9	10	11	12
	mm	10	20										

b)	mm	1	2	3	4	5	6	7	8	9	10	11	12
	cm	0.1	0.2										

c)	m	1	2	3	4	5	6	7	8	9	10	11	12
	mm	1000	2000										

2. What patterns do you see in each table in question 1?

3. Copy and complete. How can you use a ruler to help you?

a) 8 cm = mm

b) 20 cm = mm

c) 63 cm = mm

4. Copy and complete.

a) 60 mm = cm

b) 40 mm = cm

c) 100 mm = cm

5. Copy and complete.

a) 2000 mm = m

b) 6000 mm = m

c) 9000 mm = m

d) 5 m = mm

e) 2 m = mm

f) 8 m = mm

6. Name another referent for each unit of measure. Explain each choice.

a) 1 mm

b) 1 cm

c) 1 m

7. Draw each item. Measure its length in millimetres.

a) a pencil

b) a needle

8. Draw a picture of each thing. Use grid paper when it helps.

a) a feather 15 cm long

b) an insect 14 mm long

c) a label 6 cm long and 4 cm wide

d) a flower 10 cm tall

9. Use a ruler to draw each item.

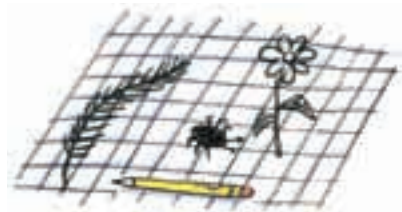
Write each measure.

Trade pictures with a classmate.

Check your classmate's measures.

a) a worm 8.5 cm long

b) a straw 13.8 cm long



10. Which items would you measure in millimetres?
Which units would you use to measure the other items?
Explain your choice.

- a) the length of a driveway
- b) the length of the sash of a "Coureur de bois"
- c) the depth of a footprint in the sand
- d) the width of a baby's finger



11. a) How are millimetres and centimetres related?
b) How are millimetres and metres related?

12. Which is longer? How do you know?

- a) 6 cm or 80 mm
- b) 25 cm or 200 mm
- c) 9 m or 7000 mm



13. Suppose you found a leaf that was 88 mm long.

- a) Is its length closer to 8 cm or 9 cm? How do you know?
- b) What other way could you write the length of the leaf?
Show your work.



14. Which unit would you use to measure each item?
Explain your choice.

- a) the height of a house
- b) the length of an eyelash
- c) the width of a calculator
- d) the thickness of a bannock

15. Nicole drew a line longer than 8 cm but shorter than 99 mm.
How long might the line be? How do you know?

16. Estimate the length of each line segment in millimetres. Then measure and record the actual length in millimetres and in centimetres.

- a) _____
- b) _____



At Home

Reflect

Name 2 items whose length, width, height, or thickness you would measure in millimetres. Explain why you would use millimetres and not any other unit.

Measure the height of a relative.
Draw a picture.
Write the height using as many different units as you can.
Round when you need to.